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QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.

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Amelia Groth

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Attorney Docket No. 407T-895820US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#18
M.Q.
5/14/03

In re application of:

Ben Shen, et al.

Examiner: Kathleen M. Kerr

Application No.: 09/477,962

Art Unit: 1652

Filed: January 5, 2000

LETTER TO OFFICIAL DRAFTSPERSON

For: BLEOMYCIN GENE CLUSTER
COMPONENTS AND THEIR USES

Attn:
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Applicant hereby submits 19 sheets of formal drawings to be made of record in the above-identified case.

Respectfully submitted,

Irene Pleasure, J.D., Ph.D.

Reg. No. 45,506

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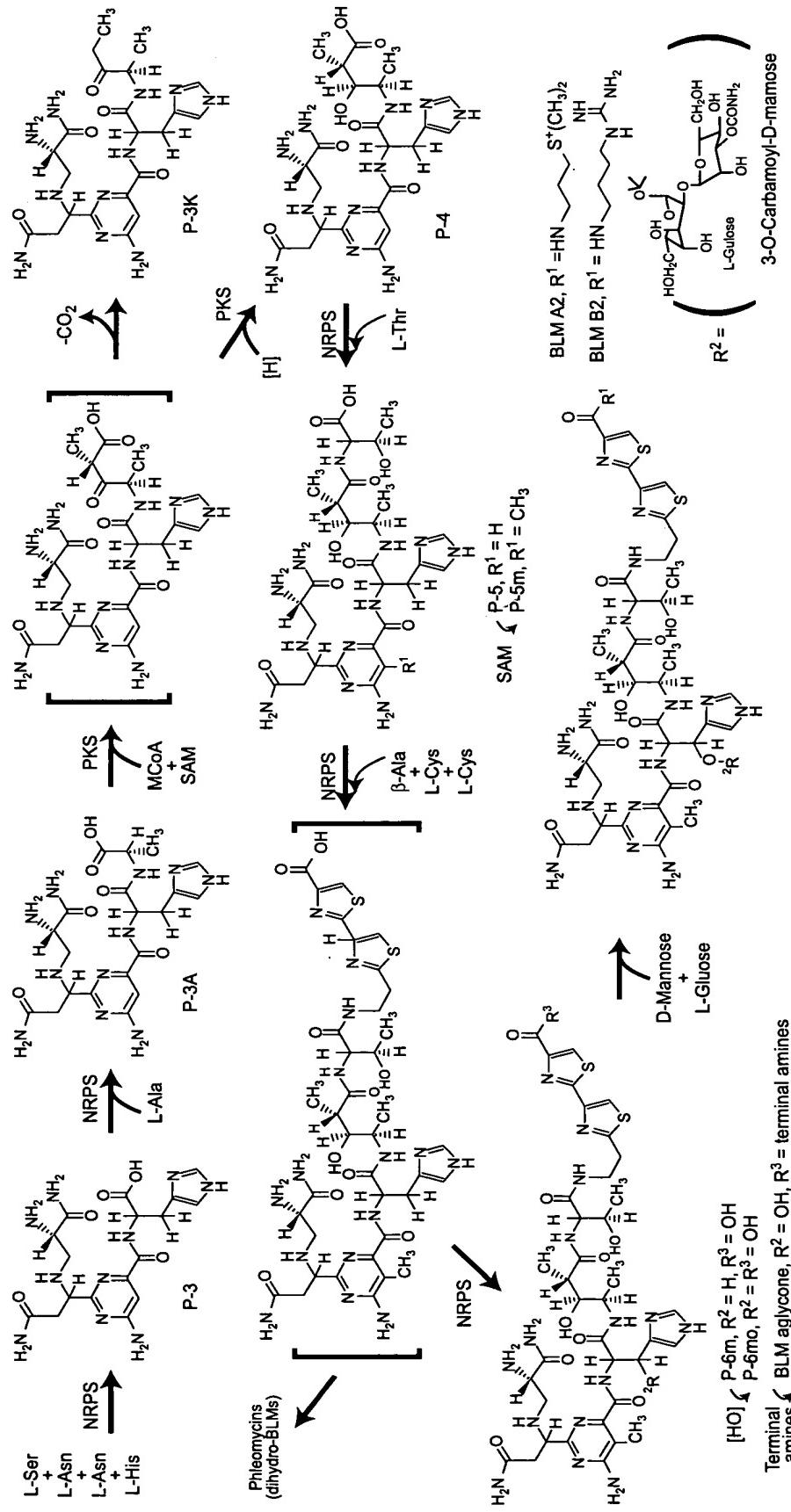


Fig. 1A

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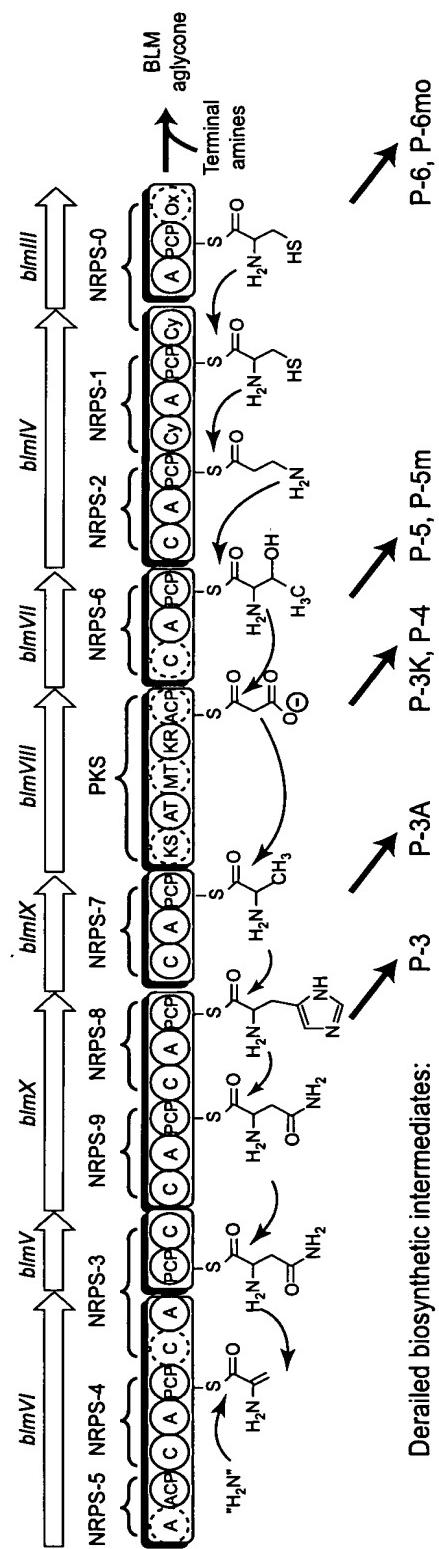


Fig. 1B



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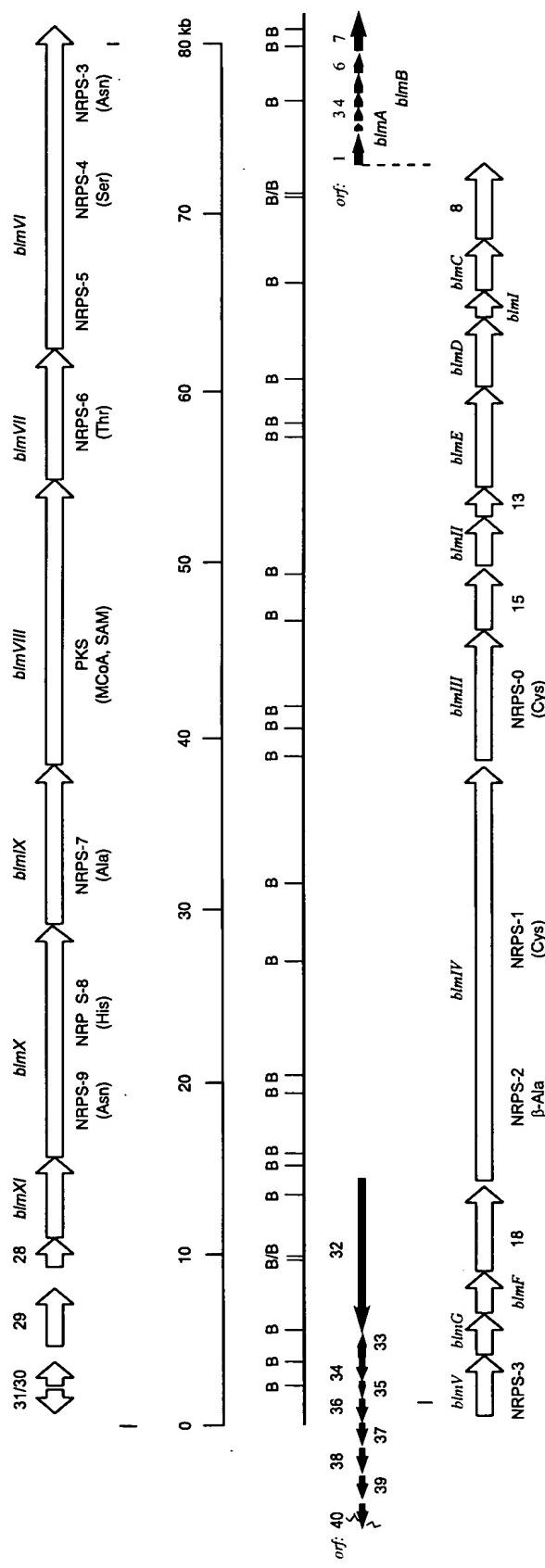


Fig. 2



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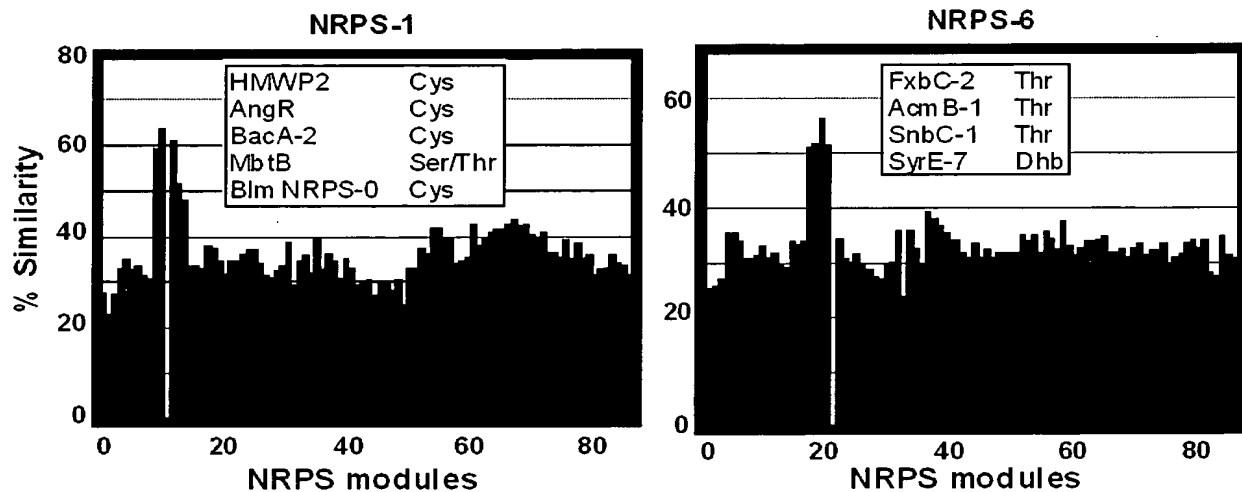


Fig. 3A

NRPS module	Substrate	Residues (PheA numbering) (16)							
		236	239	278	299	301	322	330	331
HMWP2	Cys	L	Y	N	M	S	M	I	W
AngR	Cys	L	Y	N	M	S	M	I	W
BacA-2	Cys	L	Y	N	L	S	L	I	W
MbtB	Ser/Thr	M	L	N	A	G	L	V	H
Blm NRPS-0	Cys	L	Y	H	L	G	L	P	W
Blm NRPS-1	Cys	L	Y	N	L	S	L	I	W
SyrE-7	Dhb	F	W	N	V	G	M	V	H
Acmb-1	Thr	F	W	N	V	G	M	V	H
SnbC-1	Thr	F	W	N	I	G	M	V	H
FxbC-2	Thr	F	W	N	V	G	M	V	H
Blm NRPS-6	Thr	F	W	S	V	G	M	I	H

Fig. 3B



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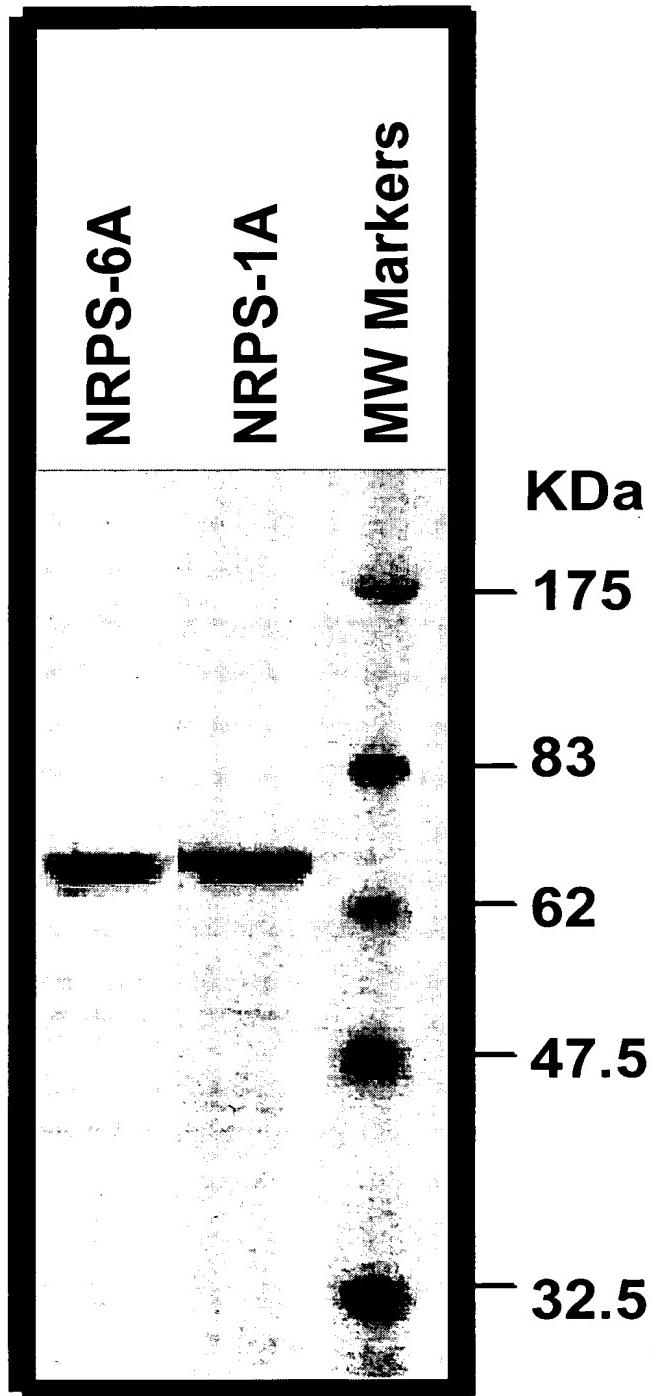


Fig. 3C



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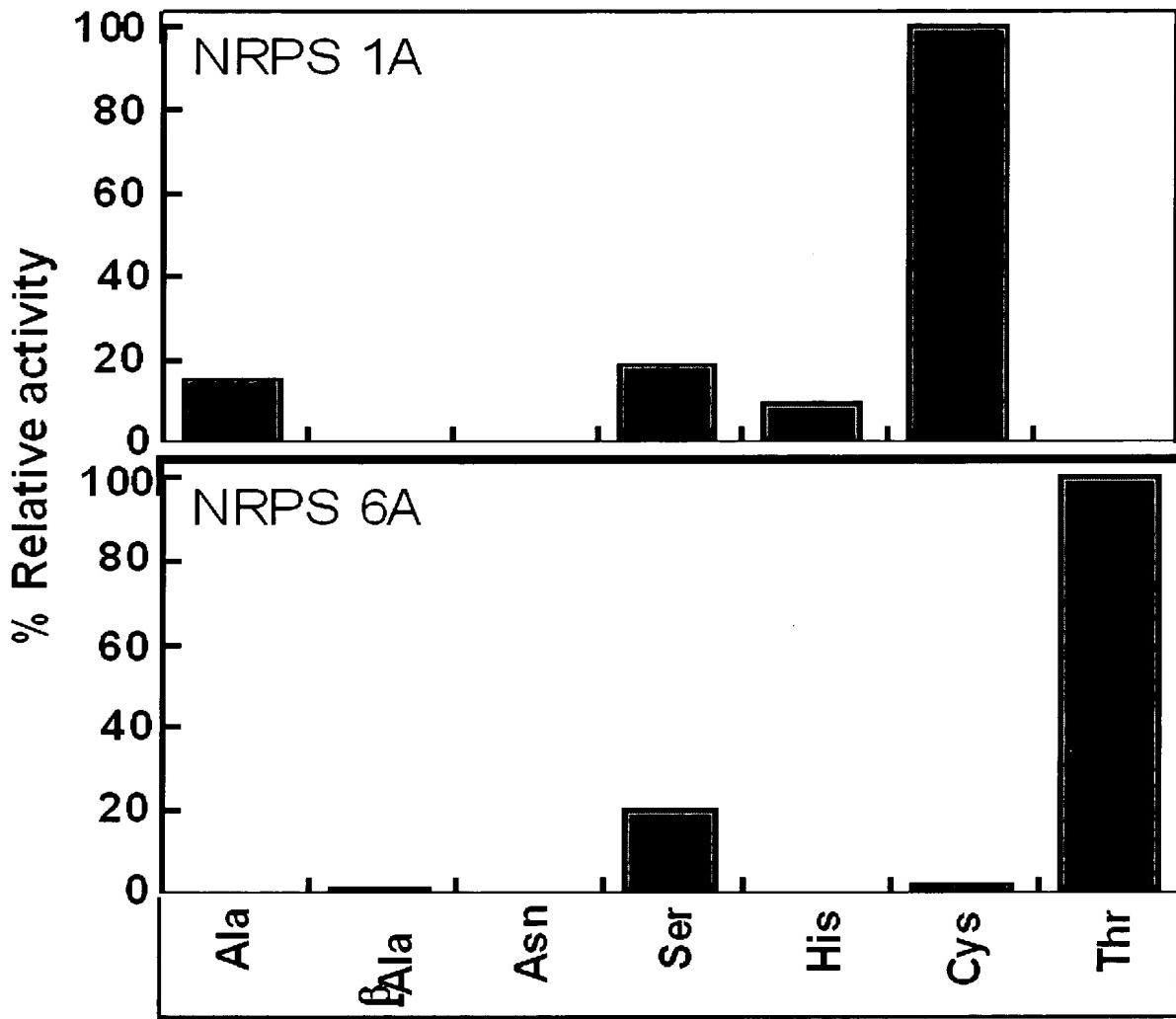
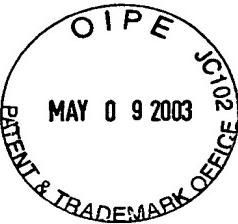


Fig. 3D



BLEOMYCIN GENE CLUSTER COMPONENTS
AND THEIR USES
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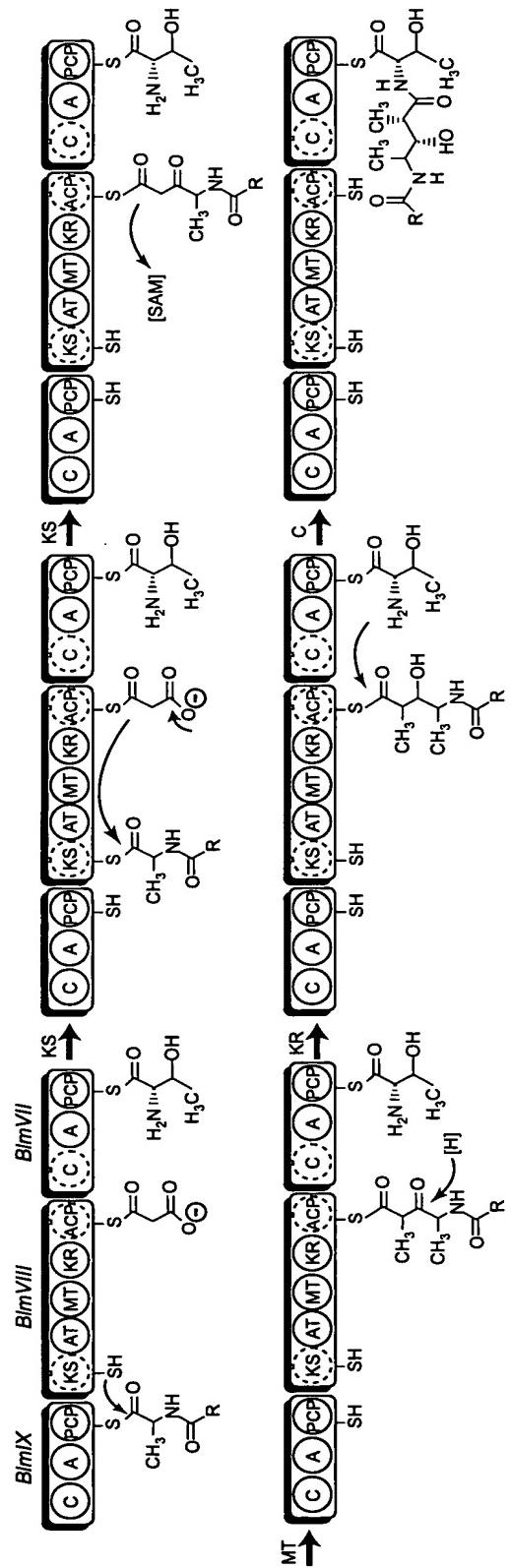


Fig. 4

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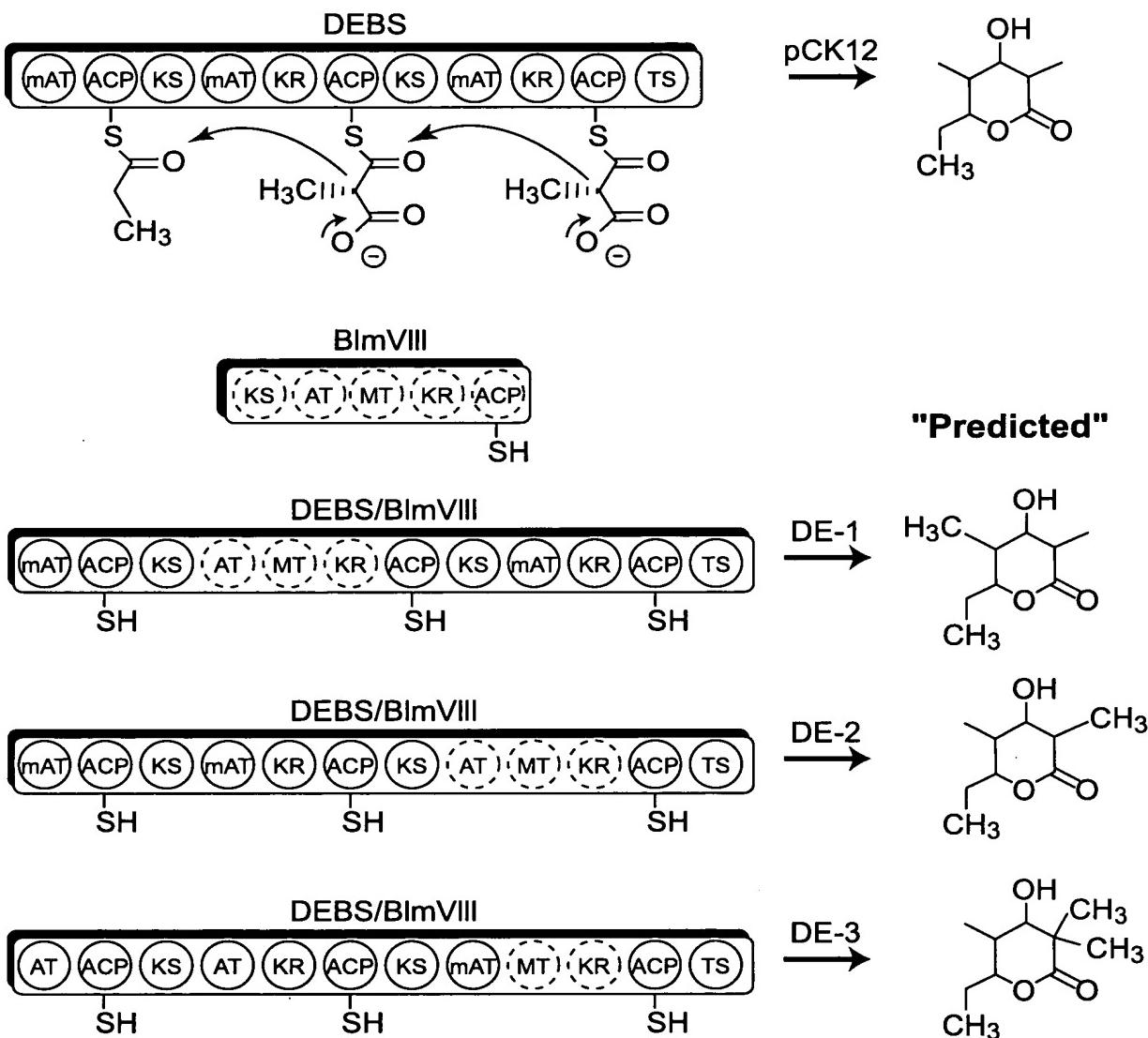
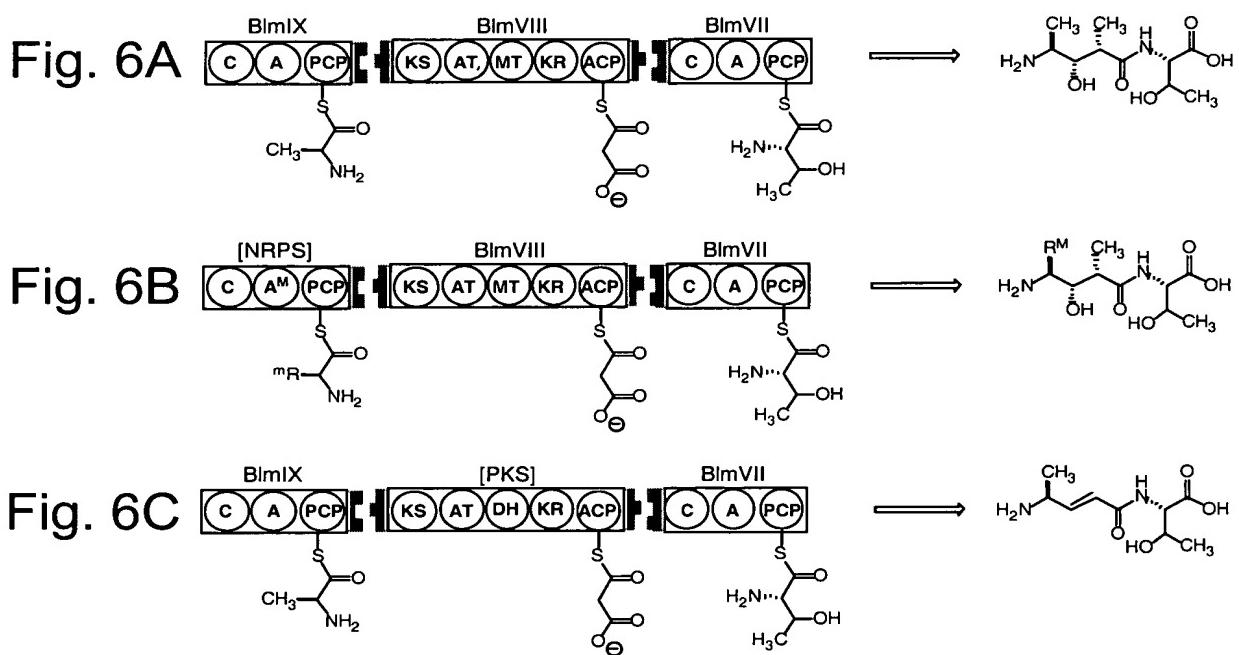


Fig. 5

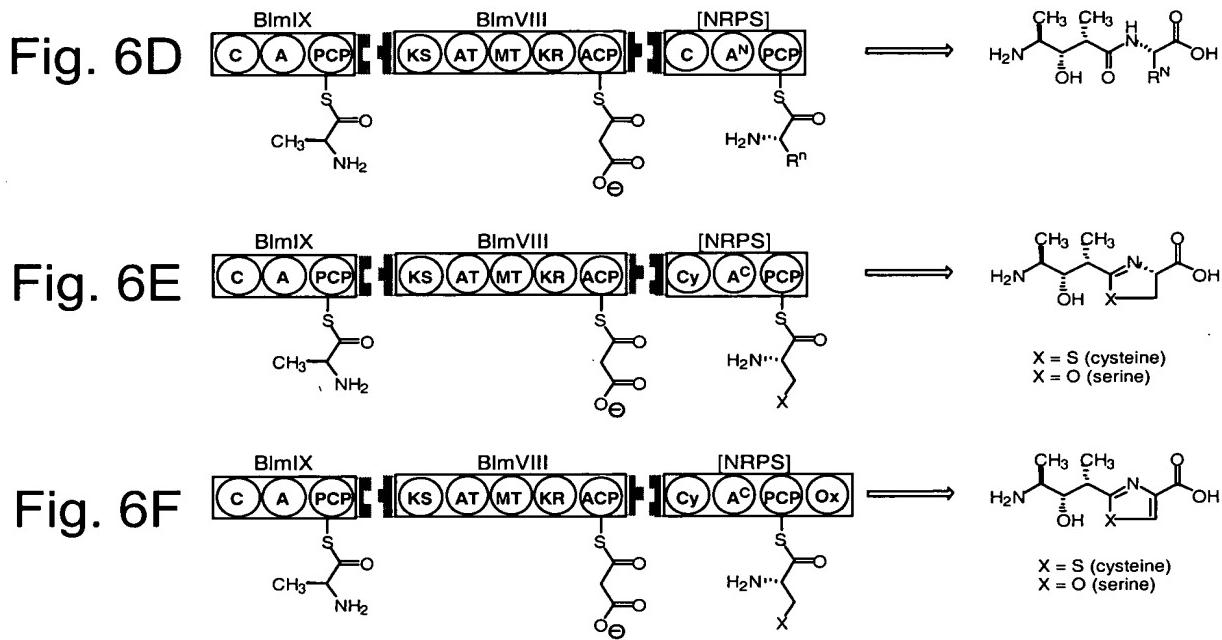


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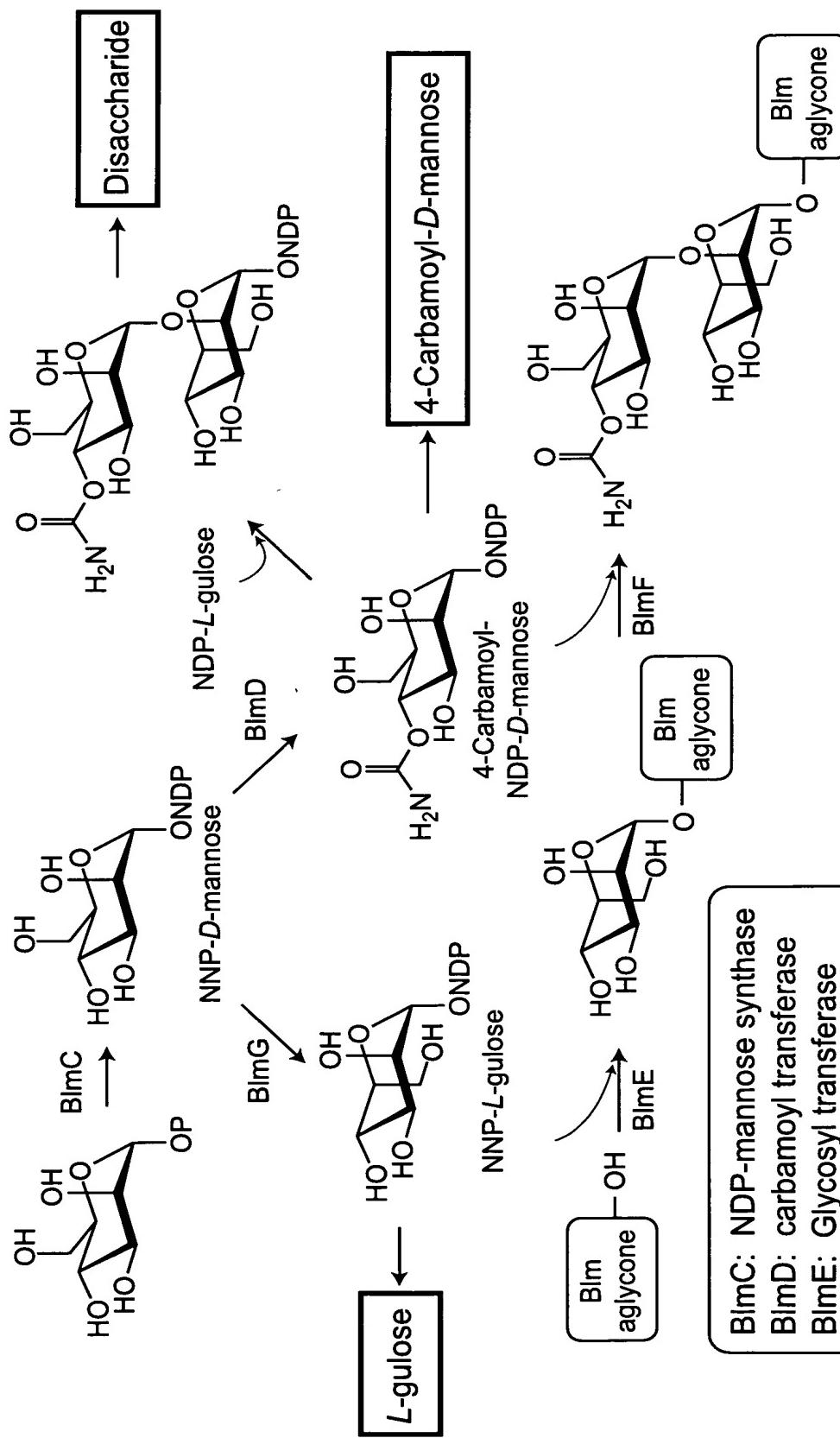


Fig. 7

BLEOMYCIN GENE CLUSTER COMPONENTS AND THEIR USES

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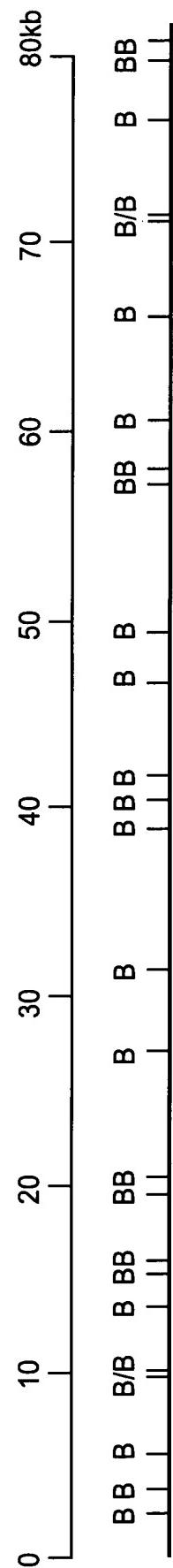


Fig. 8A



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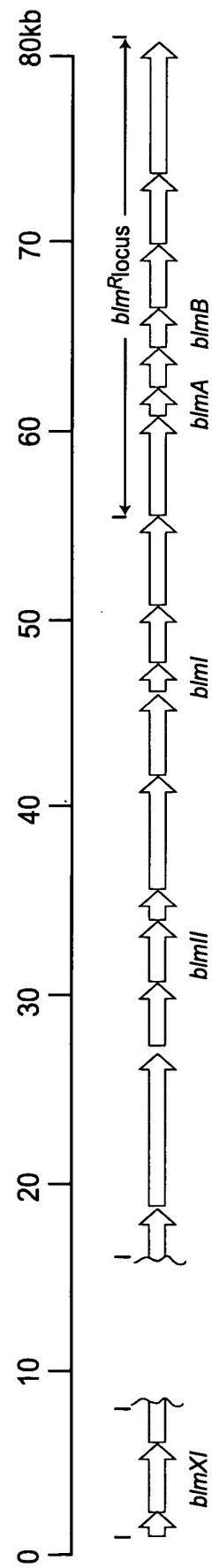


Fig. 8B



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-18 RBS
CC GGACGG CGGCCCGCTC 93
ATGAGOGOCGGGGGGAGAGGGACCGGGCGCGCGOGCTOGAAOGCGACATCGCGOGATCTGGGCGAGAGACOCTCGGCAGGGACAGOGTC 186
M S A P R G E R T R R R A L E R D I A A I W A E T L G R D S V
GGCGCGCAOGAGGACTTGGCGGCAACTOCATCCAGOCATCAAGATCACCAACCGGGTGGAGGAACCTCGTGACGCGOOGAGCTG 273
G P H E D F A A L G G N S I H A I K I T N R V E E L V D A E L
TOCATCGOGCTGCTGGAGACGCCAACCGTGGCGCATGACGGACCACGTACAGCCAAGCTCACGGGGAGCGGGACCGGTGA *
S I R V L L E T R T V A G M T D H V H A T L T G E R D R *

Fig. 8C

Grs-2	3045-ISIGTEYVAPRTMLEGKLEEIWKDV	GLQRVGIHDDFFTIGGHSL	-3089
Srfa-3	960-DQLAEEWIGPRNEMEETIAQIWSEV	GRKQICIHDDFFALGCHSL	-1004
Vir-S	557-GRSVEGRGVPRTPQQEILASLFAEV	GLSKVGIHEDFFDLGGHSI	- 601
Saf-B	1661-LDPGQDYLAPRNELEARIAAIWEGL	RRERVGVHDSFFDLGGNSI	-1705
BlmI	1-MSAPRGERTRRALERDIAAIWAET	GRDSVCPHEDFAALGGNSI	- 45
consensus	1-i g eyvapR le ia iw evLgr rvGiHddff	1GGhSl	- 45
Grs-2	3090-KAMAVISQVHKECQTEVPLRVLFETPTI	IQGLAKYIEETDTEQYMA	-3134
Srfa-3	1005-KAMTAVPH.QQEGLIDLPVKLLFEAPT	IAGISAYLKNGGSDGLQD	-1048
Vir-S	602-LATRLTSRIRTVLGAEIAVRDLFEAPT	VEALAEETLEEAREVRPAL	- 646
Saf-B	1706-LATRLATRLAATLQVOAGVRTVFHRIVAAQAHFTQATKTHQAH	-1750	
BlmI	46-HAIKITNRVEELVDAELSIRVLLET	TRIVAGMTDHVHATLTGERDR	- 90
consensus	46-kAmrv srv l ev vrvlfE pTvagla i g t		- 90

Fig. 9



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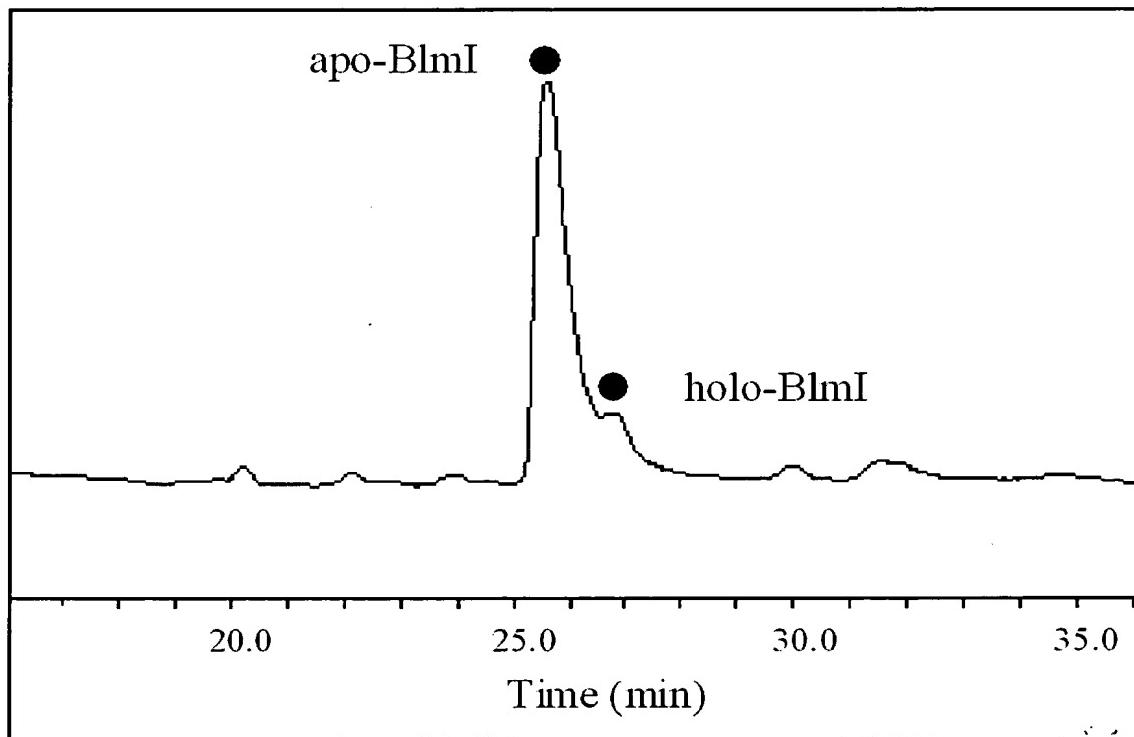


Fig. 10A



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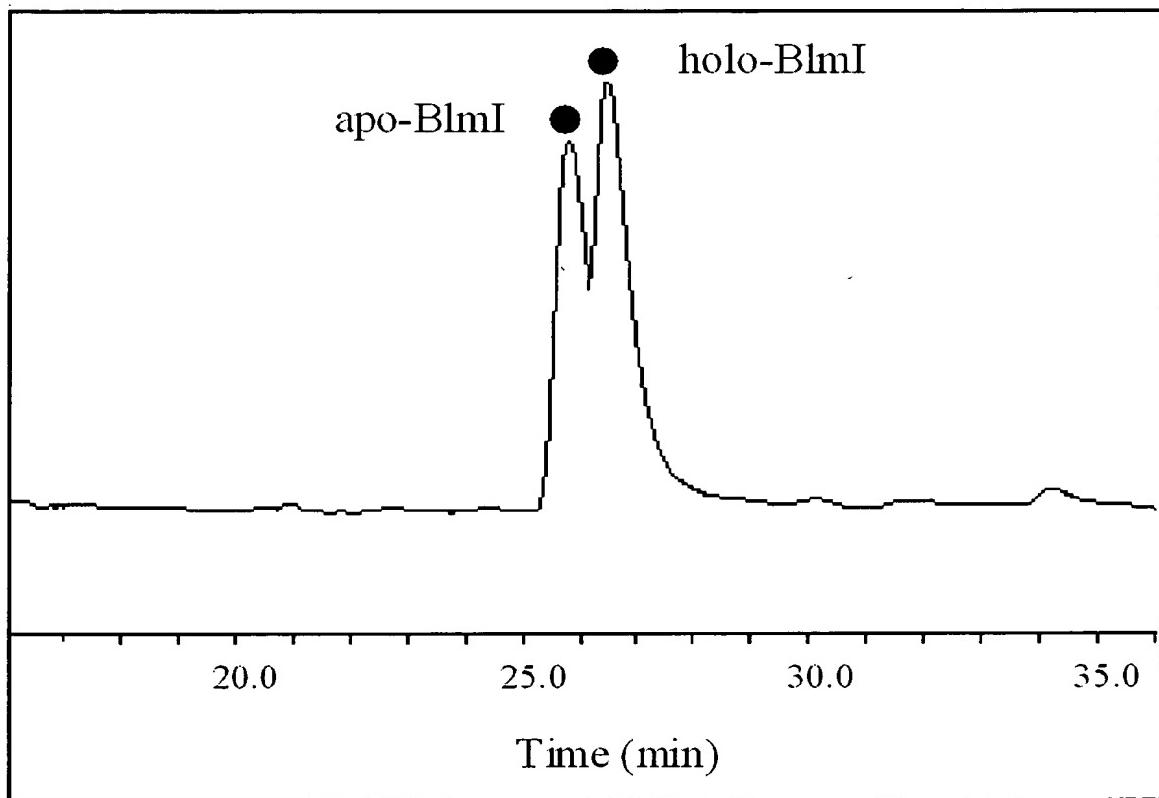


Fig. 10B



Nonreiterative Type I Modular Protein Template

Fig. 11A
PKS

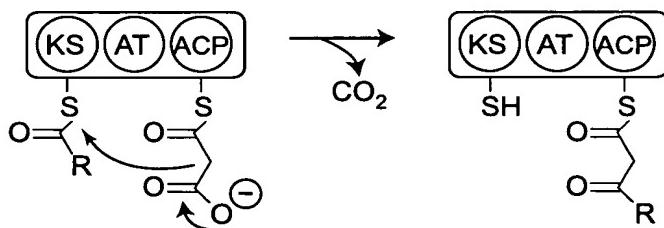
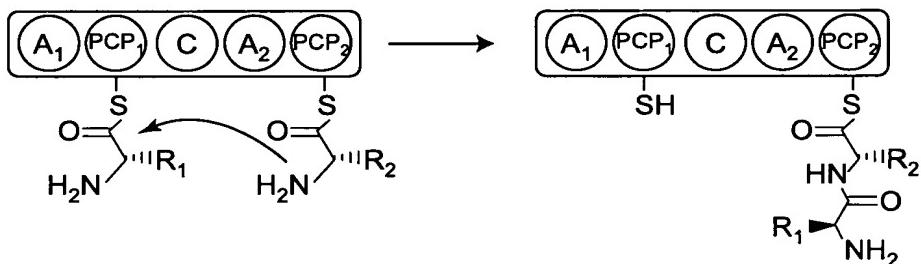


Fig. 11B
NPRS



Iterative Type II Protein Complex

Fig. 11C
PKS

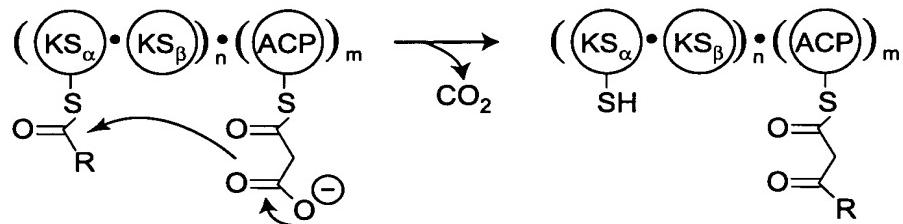
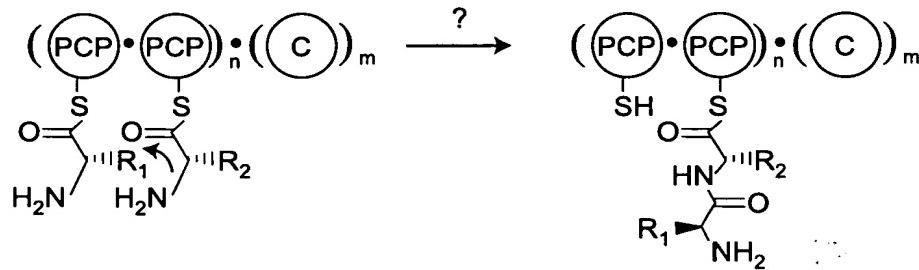


Fig. 11D
NPRS





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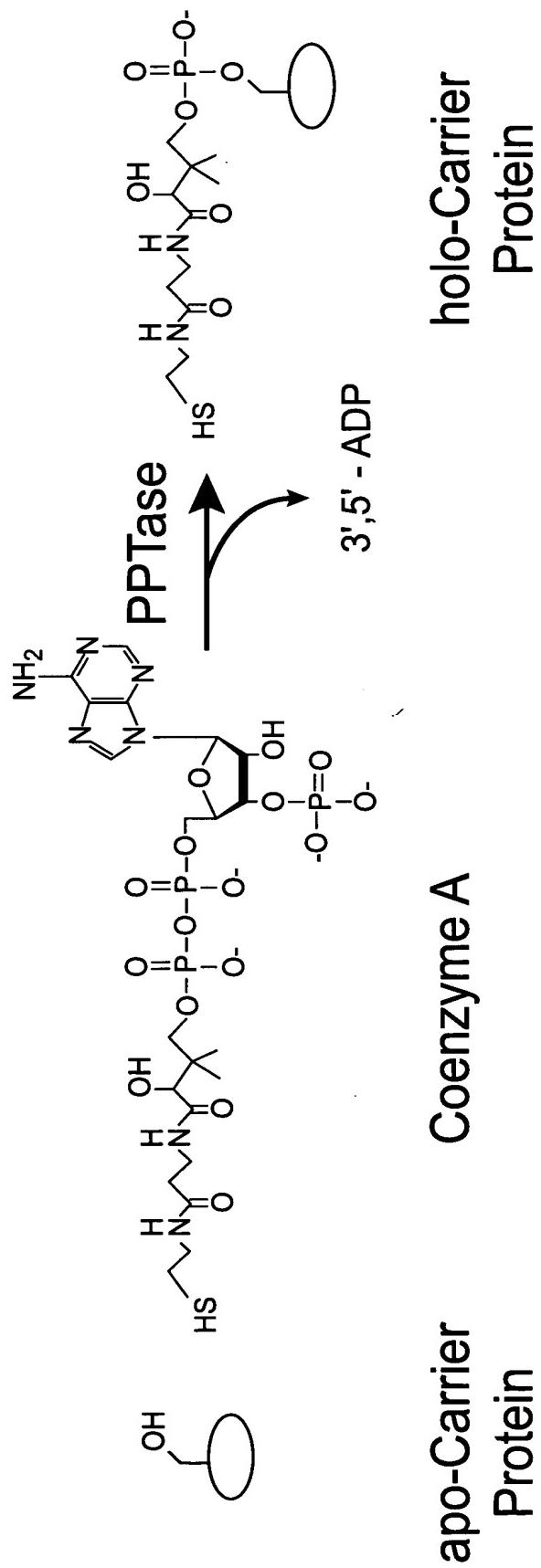


Fig. 12



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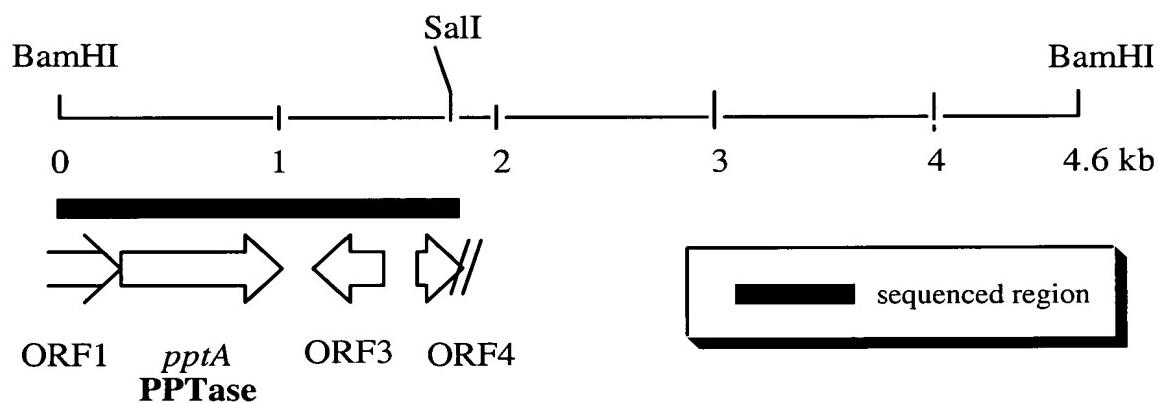


Fig. 13